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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/587,180	06/02/2000	Bernard A. Traversat	5181-49700	7222

7590 08/03/2004

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EXAMINER

HO, THANG H

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/587,180

Applicant(s)

TRAVERSAT ET AL.

Examiner

Thang H Ho

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's request for continued examination dated May 10, 2004. Claims 1-34 are pending in this application for examination. Claims 1, 15, and 25 have been amended. No new claims have been added or cancelled. Therefore, claims 1-34 remain pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9, 11-19, 21-29 and 31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Krishnan ("Heap: Pleasures and Pains", Microsoft Corporation, February 1999, pp. 1-6).

As per **claim 1**, Krishnan teaches the method for managing a virtual memory as claimed, comprising: executing a process [*i.e., application or dynamic-link library (DLL)*] within the virtual machine [*i.e., executed within a language run time such as Java can create separate heaps within a process (top of page 2)*], wherein the virtual machine provides a platform-independent operating on a particular computer platform [*It is noted that Java application is platform independent language and requires a Java*

Virtual Machine (JVM) to interpret the compiled byte codes into machine code in order to run], wherein the virtual machine comprises a virtual machine virtual memory manager [*Virtual Memory Allocator (see figure on page 1)*]; the virtual memory manager storing objects (*i.e., DLLs and java classes*) for the process executing on the virtual machine to a store heap (*i.e., a pagefile stored on a hard disk; it is noted that Windows NT virtual memory manager provides a virtual memory comprises: a physical memory and one or more pagefiles to make pages of memory available to applications on demand and provide much more virtual memory than the available physical memory*), wherein the objects are for use during execution of the process; the process referencing a first one of the objects stored in the store heap; and the virtual memory manager copying (*i.e., swapping pagefiles*) a section of the store heap including the first object to an in-memory heap (*i.e., process heap or separate heap created within the process*) in response to the process referencing the first object, wherein the in-memory heap comprises copies of sections of the store heap for the process, and wherein said copying is performed when the first object referenced by the process is in the section of the store heap and not in the in-memory heap when the first object is referenced by the process [*for a detailed discussion on Virtual Memory Manager in Windows NT, see attached reference Kath, "The virtual-Memory manager in Windows NT", Microsoft Corporation, December 21, 1992, pp. 1-12*)].

As per **claims 2-6**, the claims are rejected using the same rationale as set forth above with respect to claim 1.

As per **claims 7-9**, Krishnan teaches that the process is executing in a first memory space comprised in the virtual machine; wherein the in-memory heap is comprised in the first memory space (*i.e., physical memory*); wherein a total size of the store heap is greater than available memory space in the first memory space; and wherein the store heap is comprised in a second non-volatile memory device (*i.e., a hard disk*).

As per **claims 11-14**, the claims are rejected using the same rationale as set forth above with respect to claim 1. In addition, with respect to claim 14, it is inherent that process such as applications and DLLs comprises code and data.

As per **claims 15-19 and 21-24**, the claims are corresponding system claims comprising circuitry for implementing the method of claims 1-9 and 11-14. The claims are therefore rejected using the same rationale set forth above with respect to claims 1-14.

As per **claims 25-29 and 31-34**, the claims are directed to a computer readable medium carrying instructions, which performs the steps of implementing the process of claims 1-9 and 11-15. Hard drives and memories are computer readable mediums in addition to CD-ROMs, floppy disks, etc.; Krishnan teaches a computer implemented process, thus it is inherent that the program accomplishing the procedures must be carried or stored on a computer readable medium to enable the computer to function in the manner taught by Krishnan.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10, 20 and 30 are rejected under 35 U. S. C. 103(a) as being unpatentable over Krishnan in view of Sukegawa (USPN: 5,860,083).

As per **claims 10, 20 and 30**, Krishnan teaches the method substantially as claimed including the use of allocation caches (*page 3, Use allocation caches*). However, Krishnan does not specifically teach the use of flash memory as the memory device. Sukegawa teaches that flash memory can be used as cache memory to improve the overall system performance. Furthermore, it is advantageous to use flash memory since it has higher access speed and power is not required in order to retain cache data during power off thereby reducing the startup time for operating systems and application programs and the overall power consumption, respectively (e.g. figure 1, column 1, lines 17-61). Accordingly, it would have been prima facie obvious for one skilled in the art at the time the invention was made to implement the memory device using non-volatile memory as taught by Swanberg and utilizing flash memory as taught by Sukegawa to generate the claimed invention with a reasonable expectation of success for the reasons set forth above.

Response to Arguments

6. Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See Form PTO-892.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. Sixth Floor (Receptionist).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thang H Ho whose telephone number is 703-305-1888. The examiner can normally be reached on Monday-Friday from 7:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 703-306-2903. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

Mano Padmanabhan
7/26/04

Thang Ho
Art Unit 2188
July 26, 2004

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER